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STATISTICAL BULLETIN
Metropolitan Life Insurance Co.

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MORTALITY EXPERIENCE OF THE FIRST SIX MONTHS OF 1927

The first half of 1927 has been signalized, in all probability, by better health conditions in the general populations of the United States and Canada than have obtained during the first six months of any previous year. This is indicated by the extraordinary mortality record of more than 18,000,000 persons who are insured in the Industrial Department of the Metropolitan Life Insurance Company, and who constitute more than one-seventh of the combined populations of the two countries. The death rate of this large cross-section of the population has proved in past years to be the first accurate index of current health conditions among all the people of both countries. Hence, the mortality record of this insured group is always of unique and timely interest.

The death rate for the six months' period, among white policyholders, was 8.6 per 1,000, as compared with 9.7 in 1926 and 8.9 in 1925. The closest approach to the 1927 figure was 8.7 per 1,000, in the first half of 1921. The improvement over the previous minimum, however, is greater than appears on the basis of the two crude rates. The Metropolitan now insures infants under one year of age. In 1921 there was no infant coverage, and in consequence, no infant mortality among its policyholders. In the first half of 1927, on the other hand, there was a mean of about 492,000 infant lives insured. As this is the age period, in all classes of the population, in which the highest death rate is experienced, it is evident that were the mortality among these lives left out of the calculation, the first half of 1927 would register much greater improvement, among white lives, over the former minimal figure, in 1921. The death rate for colored lives (15.4 per 1,000) also shows a pronounced reduction over the rates recorded in the first half of 1926 and 1925. It is not a new

minimum, however, as lower figures were recorded in both 1921 and 1922.

Inspection of the table on page 6 discloses many items which are of major importance to those whose interest lies in the control of "preventable" diseases.

Three of the four principal epidemic diseases of childhood, measles, scarlet fever and whooping cough, show reduced death rates as compared with the first half of 1926. In the case of measles there has been, among white policyholders, a reduction of 60.6 per cent. and in that of whooping cough 37.8 per cent., with large reductions among the colored. The fourth disease, diphtheria, shows a considerable increase among whites and a small rise among the colored. There has been a disposition on the part of those opposed to toxin anti-toxin immunization, to make capital out of the rise in the diphtheria death rate so far this year in the face of the increased number of persons immunized. The unfavorable situation so far this year is probably only a temporary phase in a situation that has been marked by continuous improvement for six years. Coincident with the increasing use of toxin anti-toxin, since 1921, the diphtheria death rate among children insured in the Metropolitan declined from 23.8 per 100,000 in 1921, to 9.5 in 1926, a reduction of 60.1 per cent. Public health workers have become so accustomed to seeing the diphtheria death rate decline, without any interruption, that, as we announced in the April BULLETIN, the small increase observed this year "caused some anxiety among those public health workers who have been most active in conducting an earnest campaign for the immunization of children against this disease." It must be remembered that the 1927 diphtheria rate, to date, is lower than it has ever been before, at this time of the year, with the single exception of 1926. The slight increase will serve as an incentive to the public health authorities to concentrate their campaign for immunization in those communities where the mortality shows that redoubled efforts are most needed.

The typhoid fever death rate has increased appreciably this year. This, however, is due almost altogether to the outbreak in Montreal. It is extremely gratifying that conditions arising from the Mississippi flood have not as yet been reflected in an increased mortality from typhoid in the United States.

The outstanding feature of the 1927 health record, to date, is the further reduction in the mortality from tuberculosis. The season of the year in which the highest tuberculosis death rate is always

recorded is now passed, and it is assured that not only will 1927 register a new minimal figure for tuberculous disease, but that the drop will be a large one. Among white Metropolitan Industrial policyholders the death rate for January to June inclusive, was 80.4 per 100,000, as compared with 88.1 during the same months of 1926, a drop of 8.7 per cent. Among the colored, the decline this year has been small, but progress, nevertheless, is being made. This becomes evident by comparison of the figures during the first half of 1927 with those for the same period of certain previous years. The current figure is 237.6 per 100,000, as compared with 240.8, 244.6, 258.9 and 319.3 during the corresponding periods of 1926, 1924, 1922 and 1920, respectively. The figure for the whites, particularly, following the very favorable one for the first quarter, give basis for renewed hope that the time is fast approaching when tuberculous disease will be relegated to the position of a minor cause of death in American mortality statistics.

The mortality from influenza has been lower during 1927, to date, than in any year since 1924, while that for pneumonia (all forms) is better than has ever been experienced for the January-June period save in 1921. It is probable that with infant deaths from pneumonia omitted from the computation, this year's record would closely approach the 1921 minimum. Colored policyholders, as well as the whites, have shared in the reduced mortality from influenza and pneumonia this year.

Improvement in the deathrate for influenza and the respiratory diseases is always accompanied by lower mortality from the "degenerative" conditions. This accounts, in part at least, for the considerably reduced death rate from cerebral hemorrhage, organic heart disease, and chronic nephritis, so far in 1927.

The cancer situation, far from showing any improvement, is reflected in a very small increase among white policyholders and a larger one among the colored.

While the season of heaviest mortality from diarrheal complaints comes later in the year, it is, nevertheless, gratifying to be able to report a considerable drop in the death rate among white policyholders and a small one among the colored during the winter and spring months.

The tendency of the death rate for puerperal conditions among white policyholders has been distinctly downward during the more recent years. The current rate of 14.5 per 100,000, may be compared with 15.8 in 1926 and 17.0 in 1925. Unfortunately, colored insured

women have not shared in this improvement. This applies in particular to puerperal septicemia.

The diabetes death rate has registered a decline among the whites as compared with the first half of 1926, although it is still somewhat higher than in 1925. With the colored, on the other hand, there appears to be a pronounced upward trend in the mortality from diabetes. During the first half of this year their death rate reached the extremely high figure of 19.4 per 100,000 and actually exceeded that among the whites. This is a most interesting and possibly significant development in the course of the diabetes death rate since the time when the insulin treatment began to be used. It now seems fair to say that whatever small favorable effect the insulin treatment has had in reducing the death rate among the white industrial population of the country, the colored have apparently not benefited. What has probably happened is that insulin has not been administered by any means in as large a ratio of diabetes cases among the colored as among the whites. An interesting sidelight on the comparative mortality from diabetes among white and colored people is that in the general population the diabetes death rate runs considerably higher among the whites. The greater susceptibility of white men to diabetes was brought out very clearly during the war in the medical examinations consequent on the draft. We have always observed a somewhat higher diabetes death rate among white men and women insured in the Metropolitan Industrial Department than among the colored. The margin, however, has been by no means as great as that in evidence in the general population. The explanation lies doubtless in the fact that the insured negroes are, almost altogether, urban residents, and that they have a much higher diabetes death rate than have negroes in rural areas.

Alcoholism was charged with 300 deaths during the first half of 1927 as compared with 308 during the corresponding period of 1926. The death rate declined from 3.6 per 100,000 to 3.4, a reduction of 5.5 per cent. A unique, and to our mind a significant item in connection with the alcoholism mortality record this year, is the higher death rate registered in the second quarter as compared with the first. The figures of prior years have shown that the mortality from alcoholism has been seasonal, quite uniformly, and that the higher death rates have been recorded in the first and final quarters. We suggest that the falling off in the first quarter of 1927 was probably the direct and immediate reflex of a very definite object-lesson, namely, the large number of deaths which occurred during the "Holidays" from

the drinking of poisonous alcoholic compounds. Since, this object-lesson has ceased to be a first-page news item the alcoholism death rate has again increased, and we have the unusual phenomenon of a second-quarter mortality exceeding that of the first quarter. Incidentally, it also exceeds that of the second quarter of 1926, although the first quarter showed improvement over the 1926 figure.

Deaths from cirrhosis of the liver, which is closely associated with alcoholism, numbered 587 during the six months' period, as compared with 598 during the same months of last year and the deathrate dropped to 6.6 per 100,000 from 6.9 in 1926. There were 12 deaths from wood and denatured alcohol poisoning as compared with 10 during the first six months of 1926.

The mortality record for violent deaths during the first half of 1927 compares unfavorably (although not alarmingly so) with that of last year. Suicides have increased appreciably, fatal accidents slightly, and homicides very slightly. Accidental drownings have been considerably more frequent, have registered a 10 per cent. increase among whites, and have actually doubled among the colored.

The automobile fatality figures are becoming more and more discouraging with each passing year. The most recent data show more clearly than ever that no methods now in general use have served even to check (to say nothing of reducing) the life wastage that arises from motor vehicle traffic. About one-fourth of all the lives lost in all kinds of accidents among Metropolitan Industrial policyholders during the first half of this year, were due to automobile fatalities. There is absolutely no grain of comfort to be derived from the statistics of deaths from automobile accidents. The mortality from this cause has been increasing continuously for more than a score of years. The only encouraging item in the whole situation is that in certain communities actual success has attended the adoption of plans for traffic regulation and both deaths and injuries in those communities have been less numerous. If we are to reduce the motor vehicle death toll it is suggested that the best means to that end will be the *general* study, with a view to *general* application, of the methods which have been demonstrated successes in certain communities. In this connection we recommend that every official concerned with traffic regulation, study in detail, the safety measures which have been so outstandingly successful in Albany, N. Y., Grand Rapids, Mich., and Providence, R. I.

Thirty-eight per cent. of the death toll from automobile accidents among Metropolitan Industrial policyholders, so far this year, has

Death Rates per 100,000 Exposed. First Six Months of 1925, 1926 and 1927 Compared by Color for Principal Causes of Death. Industrial Department, Metropolitan Life Insurance Company. Premium-paying Business.

Cause of Death	Death Rates per 100,000 Persons Exposed					
	White			Colored		
	Jan.-June, 1927	Jan.-June, 1926	Jan.-June, 1925	Jan.-June, 1927	Jan.-June, 1926	Jan.-June, 1925
All Causes of Death	856.8	966.7	894.2	1540.4	1654.6	1612.9
Typhoid fever	4.2	2.5	2.3	6.5	4.5	6.3
Measles	7.1	18.0	4.4	3.6	13.0	3.2
Scarlet fever	4.4	5.0	5.4	1.4	1.5	1.2
Whooping cough	6.9	11.1	7.1	9.4	13.6	13.7
Diphtheria	11.8	10.1	12.7	6.7	6.2	5.3
Influenza	21.6	45.9	29.0	52.4	91.5	71.4
Meningococcus meningitis	1.3	.9	1.0	1.8	.6	.7
Tuberculosis—all forms	80.4	88.1	88.9	237.6	240.8	239.2
Tuberculosis of respiratory system	70.3	77.5	77.9	208.3	210.8	208.3
Tuberculosis of meninges; etc.	5.0	5.1	5.4	7.4	7.7	9.1
Other forms of tuberculosis	5.1	5.5	5.6	21.8	22.3	21.7
Cancer	74.5	74.3	70.7	71.8	67.0	72.8
Diabetes	17.3	18.2	16.9	19.4	16.3	15.9
Alcoholism	3.1	3.4	2.8	5.0	4.8	4.2
Cerebral hemorrhage; apoplexy	51.5	55.3	53.3	97.7	101.1	91.0
Organic diseases of the heart	130.0	142.3	128.1	217.4	219.5	232.1
Total respiratory diseases	102.7	140.6	118.0	209.8	276.3	239.0
Bronchitis	4.6	5.9	6.1	8.1	10.7	9.8
Bronchopneumonia	39.2	58.2	44.5	68.0	97.0	74.8
Pneumonia—lobar and undefined	50.9	68.2	58.9	121.9	155.6	139.3
Other diseases of respiratory system	8.0	8.3	8.4	11.7	13.0	15.0
Diarrhea and enteritis	16.5	18.0	19.8	19.6	20.1	27.1
Under 2 years	13.3	15.2	16 7	13.3	14.9	19.5
2 years and over	3.2	2.8	3.1	6.3	5.2	7.6
Acute nephritis	4.0	4.6	5.0	15.3	16.9	16.0
Chronic nephritis	66.0	72.2	67.6	129.6	137.0	131.9
Total puerperal state	14.5	15.8	17.0	25.5	24.5	25.5
Puerperal septicemia	5.9	6.0	6.5	13.4	11.4	11.6
Puerperal albuminuria and convulsions	2.8	3.5	3.8	4.6	5.9	5.6
Other diseases of puerperal state	5.9	6.3	6.8	7.5	7.2	8.3
Total external causes	68.2	66.5	70.8	115.5	110.4	109.9
Suicides	8.5	7.8	7.2	7.0	5.7	4.3
Homicides	3.1	3.1	3.5	36.6	33.1	33.0
Accidental and unspecified violence	56.6	55.6	60.1	71.9	71.6	72.6
Accidental drowning	4.5	4.1	4.6	6.5	3.4	5.2
Automobile accidents	15.1	14.5	13.6	14.7	13.1	11.3
All other and ill-defined causes of death	170.7	173.8	173.1	294.7	288.9	306.5

involved the lives of children. In previous years it has approximated 40 per cent. We would again direct attention, as we did in the February Statistical Bulletin, to the fact that this whole problem

is one with which the child welfare associations might well concern themselves; for child welfare involves safety as well as health problems. They might well lend their efforts to furthering the stricter regulation of automobile traffic, the establishment of playgrounds, and the teaching in the schools of the dangers of street play. The child welfare societies could make no greater contribution than that of lending their aid to the project of establishing in every American school a class in safety education.

The table on page 6 presents the death rates among white and colored policyholders, respectively, for the first six months of 1927, 1926 and 1925.

THE RATIO OF THE SEXES

It is virtually a universal phenomenon that more boys than girls are born. In the United States in recent years, the ratio of male to female births has been approximately 1.06. This means that there are 106 boys born for each 100 girls. This figure, however, varies according to the age of the mother. Very young mothers, that is, under age 15 (and there have been over 5,000 births among mothers of this age since the Census Bureau started to collect these statistics) have a sex ratio of 1.23, or 16 per cent. in excess of the general average of women at all ages. Mothers who have a baby at comparatively advanced age, tend to have a somewhat diminished proportion of boys although, even then, there are more boys born than girls, the ratio being 1.055. The above figures are based upon the accumulated records for eight years, 1917 to 1924, and published by the United States Census Bureau.

There are certain differences in sex ratios of children born in wedlock and out of wedlock. But without regard to this distinction and considering the entire eight-year period, the sex ratios are as follows:

Age of Mother	Sex Ratio		Standard Error
Under 15 years	1.229	±	.0200
15 to 34 years	1.060	±	.0005
35 to 54 years	1.055	±	.0010
All ages	1.059	±	.0004

The ratio of the sexes in the actual population may be expected to differ from the ratio at birth. This is because of the operation of two forces, the first being differential mortality of the two sexes, and second, differential immigration. The death rate is always heavier among males, and this has the effect of bringing down the initial

excess of males perceptibly. Immigration, on the other hand, brings in a considerable excess of males over females, and the effect of this factor is to help to restore the initial disparity between the sexes. In the United States, the ratio of males to females in the actual white population is 1.040, as contrasted with 1.060 at birth. In a stationary American population, that is, one in which immigration would be eliminated and in which the birth rate and death rate were balanced, the ratio of males to females would be 1.013. In other words, the effect of the higher male mortality would be very nearly to strike a balance between the two sexes.

It is interesting to compare the sex ratio as observed in the actual white population in the United States, 1.040, with the corresponding figures for other countries. We quote a collection of such figures given by A. S. PARKES.*

Sex Ratio of Population in Several Countries.

Country	Males per 100 Females	Country	Males per 100 Females
Great Britain	93.5	Belgium	98.4
Norway	94.0	Italy	99.0
Denmark	94.5	Poland	100.5
Sweden	95.3	Greenland	101.5
Spain	95.3	Japan	102.0
Austria	96.6	India	104.1
Germany	96.9	Bulgaria	104.5
European Russia	97.2	Serbia	106.0
Switzerland	97.2	Siberia	106.0
Hungary	97.7	Caucasus	111.0
France	97.9	Korea	113.0
Holland	98.2	Asiatic Russia	117.5
Ireland	98.3	China	125.0

In the European countries, the sex ratios are almost all below a hundred, which means that there is an excess of females over males. These figures are largely the result of the heavy migration of males and, secondarily, the higher mortality among males. In the Asiatic and in some of the less advanced European countries, the ratios are very heavily in favor of males. In China, for example, the figure is 125 males for 100 females. Undoubtedly, this is an exaggerated picture because there is a tendency among eastern nations to regard the female lightly and this probably results in many escaping enumeration. But even making allowance for this, it is significant how in these

*Eugenics Review, Vol 17, p. 285.

countries, the proportion of surviving males as compared with females rises materially above 100 per cent. In spite of woman's naturally greater resistance to ordinary life hazards, the survival of women is less than that of men, just the reverse of what we observe in our own country and the advanced portions of Europe.

HEALTH RECORD FOR JUNE, 1927

The general death rate, although somewhat higher than that for May, shows a 4.2 per cent. decline from the mortality in June, a year ago. This is the sixth successive month of 1927 to record a lower death rate than the corresponding month of 1926.

The most pronounced declines this month, as compared with June, 1926, were those for measles, 62.5 per cent.; whooping cough, 34.3 per cent.; influenza, 43.9 per cent.; tuberculosis, 10.9 per cent.; and pneumonia, 17.7 per cent. Typhoid fever, on the other hand, showed an increase of nearly 100 per cent. due almost entirely to the high mortality in the Montreal area. The diphtheria deathrate was 10.4 per 100,000 as compared with 9.1 in June, 1926. This disease has had in each month of the current year a higher deathrate than in the corresponding month of 1926.

The mortality record for deaths due to violence was again unsatisfactory. Suicides were more numerous than last year as they have been in five of the six elapsed months. All accidents combined and automobile fatalities also registered a higher deathrate than during June a year ago.

The general death rate for the large cities of the United States in June was 11.7 per 1,000 as compared with 12.0 in June, 1926. Comparison with May, 1927, shows greater prevalence of poliomyelitis and typhoid fever with less diphtheria, influenza, measles, scarlet fever and smallpox. Comparison with June, 1926, discloses more cases of diphtheria, poliomyelitis, smallpox and typhoid fever with lower incidence of influenza and scarlet fever.

The diphtheria situation improved somewhat in June. The total for forty states showed thirty-two less cases than in May. The most notable decline was in Missouri which reported only seventy cases for the first three weeks in June as compared with 129 for the corresponding weeks of May. In Wisconsin, however, case reports rose from 79 during these weeks in May to 217 during the same weeks in June.

Measles and scarlet fever showed very decided declines as compared with May and influenza cases were only one-half as numerous. Smallpox case reports in 41 states declined from 2,010 to 1,650.

Among the important health activities of the month the following may be mentioned. A conference on health in the flooded area in the Mississippi Valley was held in New Orleans on June 5th. Resolutions were passed for a rehabilitation programme in the seven states affected according to which a health unit would be established in each county. This programme would be financed by the state, the county, the Rockefeller Foundation and, when necessary, by the Red Cross, with the understanding that the communities affected would take over the expense gradually and as soon as possible. The Kansas State Board of Health planned to broadcast a brief health talk weekly from June 23d to August 25th. Plans are being made for the first national and international survey of lethargic encephalitis.

The following table shows the mortality among Industrial policyholders for June, 1927; May, 1927; June, 1926, and the year 1926.

METROPOLITAN LIFE INSURANCE COMPANY

Death Rates* per 100,000 for Principal Causes, Premium-paying Business in Industrial Department (Annual Basis)

MONTHS OF JUNE, 1927; MAY, 1927, AND OF JUNE, 1926

CAUSES OF DEATH	RATE PER 100,000 LIVES EXPOSED*			
	June, 1927	May, 1927	June, 1926	Year 1926†
TOTAL—ALL CAUSES	923.2	874.8	964.3	942.7
Typhoid fever	6.1	5.2	3.1	4.2
Measles	5.7	7.5	15.2	10.2
Scarlet fever	3.5	3.5	4.9	3.4
Whooping cough	6.9	6.5	10.5	9.6
Diphtheria	10.4	10.6	9.1	9.7
Influenza	12.0	18.7	21.4	31.0
Tuberculosis (All forms)	99.8	96.4	112.0	98.7
Tuberculosis of resp'y system	80.9	81.5	99.2	86.5
Cancer	74.0	68.4	75.2	73.5
Diabetes mellitus	16.9	16.0	15.7	16.7
Cerebral hemorrhage	57.5	49.3	54.9	55.5
Organic diseases of heart	138.7	130.8	137.8	133.9
Pneumonia (All forms)	69.7	84.3	84.7	97.9
Other respiratory diseases	16.7	16.3	13.3	13.1
Diarrhea and enteritis	22.0	17.7	24.0	29.8
Bright's disease (Chronic nephritis)	75.5	70.1	75.0	73.3
Puerperal state	16.3	14.7	16.5	15.3
Suicides	8.6	7.6	8.0	7.6
Homicides	7.6	7.6	7.7	7.0
Other external causes (excluding suicides and homicides)	69.0	53.6	66.7	62.2
Traumatism by automobiles	19.5	13.0	19.0	16.7
All other causes	206.3	189.8	208.8	190.4

*All figures include infants insured under one year of age.
†Based on provisional estimate of lives exposed to risk in 1926.

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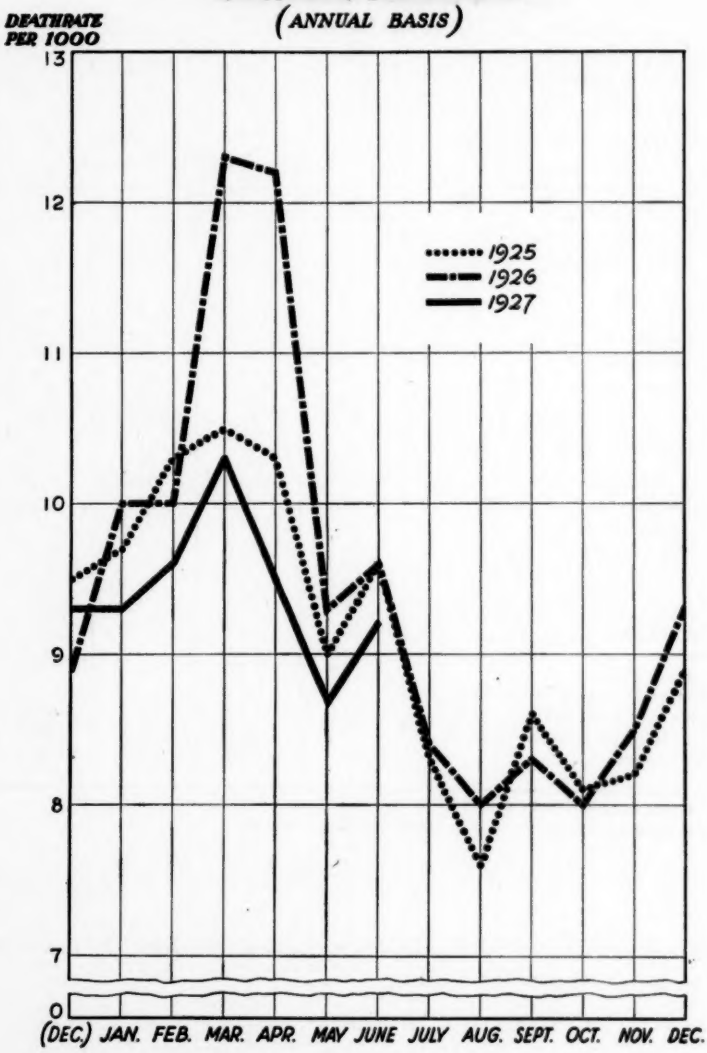
Deathrates from All Causes

METROPOLITAN LIFE INSURANCE CO.
INDUSTRIAL DEPARTMENT
(ANNUAL BASIS)



	(DEC.)	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1925		9.7	10.3	10.5	10.3	9.0	9.6	8.3	7.6	8.6	8.1	8.2	8.9
1926		10.0	10.0	12.3	12.2	9.3	9.6	8.4	8.0	8.3	8.0	8.5	9.3
1927		9.3	9.6	10.3	9.5	8.7	9.2						

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